ROCKS and MINERALS

A Magazine for Mineralogist, Geologist and Collector . . .

. . . . . *Official Journal of The Rocks and Minerals Association*

January, 1939

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THE ROCKS AND MINERALS ASSOCIATION

PEEKSKILL, N. Y.

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Organized in 1928 for the increase and dissemination of mineralogic knowledge.

To stimulate public interest in geology and mineralogy and to endeavor to have courses in these subjects introduced in the curricula of the public school systems; to revive a general interest in minerals and mineral collecting; to instruct beginners as to how a collection can be made and cared for; to keep an accurate and permanent record of all mineral localities and minerals found there and to print same for distribution; to encourage the search for new minerals that have not yet been discovered; and to endeavor to secure the practical conservation of mineral localities and unusual rock formations.

Ever since its foundation in 1928, the Rocks and Minerals Association has done much to promote the interest in mineralogy. It has sponsored outings, expeditions, formations of mineralogical clubs and the printing of many articles that have been a distinct contribution to mineralogy.

Those of our readers who are members of the Association can rightly feel that they too were sponsors of these many achievements that have helped to give mineralogy a national recognition. Among your friends there must be many who would like to have a part in the Association's work—to share with you the personal satisfaction, the pleasure, and the benefits of membership. Will you give your friends this opportunity to join the Association by nominating them for membership?

Each new member helps to extend the Association's activities—helps to make your magazine larger,better, and more interesting, and above all assists in the dissemination of mineralogical knowledge.

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Affiliation with the world's largest mineralogical society cannot fail to increase membership, enlarge circles of acquaintanceship, and stimulate a keener interest in mineralogy.

A list of affiliated clubs will be found among the back pages of the magazine.

ROCKS and MINERALS

PUBLISHED MONTHLY

Edited and Published by PETER ZODAC

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ROCKS and MINERALS PEEKSKILL, N. Y., U. S. A.

The Official Journal of the Rocks and Minerals Association

Chips from the Quarry

PETER ZODAC

Our New Dress

ROCKS AND MINERALS is coming to our readers this month in a new dress. We thought for some time that a larger type would make easier reading. How do you like the change?

Our printers and the Editor are much pleased with the appearance of this issue and we believe our readers will be in hearty accord with it.

The Prize Contest

On another page of this issue we are printing the award of the judges in the Prize Article Contest. While the donors of the prizes regretted that the judges were not overwhelmed with manuscripts there was a sufficient number to give them much work to do and to reach a final decision as to which three should receive the prizes. There was much reading and rereading before the final selections were made. The judges have recommended that certain manuscripts which did not win prizes are still worthy of publication.

A Trifling Misunderstanding

The editor of this magazine was recently climbing Mt. Beacon, a noted summer resort, near Beacon, N. Y., with several friends when chancing upon some rather good looking epidote each member of the party began hammering away to secure a specimen for himself. Activity had attained its maximum when a lady and gentleman, and their 10 year old daughter, attracted by the noise of the hammering, came over to ask what it was all about.

"We are getting some epidote. Would you like a specimen?" said one of the collectors handing him a piece.

At the same instant another of the party said," That is Zodac over there, Editor of ROCKS AND MINERALS."

The two remarks were thus so jumbled together that the gentlemen, rather confused, said, as he examined the piece in his hand: "So this is Zodac, is it? I've heard a lot about it but never saw it before."

This was bad enough for the editor of this magazine, but when the young girl picked up a fragment which he had chipped out and handed it to her father, and her father had said: "Give it back to Mr. Epidote, dear," the editor fell petrified.

Thank You, Members!

The Editor wishes to express his grateful thanks to those members who very courteously sent him Christmas cards. A large number of them had been received before this issue even went to press.

Peter Zodac

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Whole No. 90

MOUNTAIN LEATHER AT PATTERSON, N. Y.

By PETER ZODAC
Editor, Rocks and Minerals

A mineral that is interesting because of its peculiar structure is mountain leather. Its structure is so unique and odd that one can hardly believe it to be a mineral. While it is a variety of amphibole which has been altered from actinolite and tremolite, this alteration is more of a physical than a chemical change. Mountain leather occurs in thin tough sheets of interlaced fibers, looking and feeling a little like ordinary leather and especially when wet. It is usually grayish in color. Mountain leather, mountain cork, and mountain wood are names given to practically the same substance but which may vary in thickness or in some other physical manner. In describing these minerals Cleveland[1] said:

"MOUNTAIN CORK:—This variety (of asbestus) is so light, that it ordinarily swims on water, its specific gravity usually varying between 0.68 and 0.99. Its structure is fibrous; but the fibres, very seldom parallel, are mingled and promiscuously interwoven, thus leaving numerous pores; hence its low specific gravity, and its power of absorbing a large quantity of water.

"Although its hardness is variable, it may usually be impressed by the finger nail. It has little or no lustre; and its fibers are so fine, that its fracture, at first view, appears compact and uneven. Its more common colors are gray, grayish or yellowish white, and sometimes yellowish brown, or pale yellow. It is usually opaque.

"It is sometimes in masses, which have the softness of cork, and are slightly elastic. When in thick, spongy plates, it has been called *rock or fossil flesh*. Its plates have also received the trivial names of *rock or mountain leather, rock paper*, etc.—according to the degree of thickness and flexibility, which they possess.

"It is less easily fusible, than the other varieties.

"This variety is found in Saxony, France, Scotland, etc., and sometimes in metallic veins. Near Alais, in France, it occurs on the surface of the soil, in long whitish masses, resembling human bones."

Another writer, Sowerby[2] said:

"In Scotland, a variety of asbestus is found, which is termed *Mountain leather*, from its resemblance to that substance. It occurs in flat, flexible pieces, and when these are very thin it is termed *Mountain paper*. Another variety, which is so light as to

1 Cleveland, Parker *An Elementary Treatise on Mineralogy and Geology*, Boston, 1822, p. 407.

2 Sowerbury, Henry, *Popular Mineralogy*, London, 1850, pp. 114-115.

swim on water, and which greatly resembles cork in appearance and colour, is found in Norway, Spain, and Scotland. This is termed *Mountain cork.*"

Still another writer, Dana,[3] in speaking of this mineral said:

"Mountain leather occurs in thin tough sheets, looking and feeling a little like kid leather. It consists of interlaced fibers of asbestus, and forms thin seams between layers or in fissures of rocks. Mountain cork is similar, but is in thicker masses; it has the elasticity of cork, and is usually white or grayish-white."

At the American Museum of Natural History in New York City, is exhibited a large sheet of mountain leather that is approximately 5x2 feet by 3 inches thick. It is white in color with brown edges; the brown color is evidently due to limonite stains. It comes from the Yalu River, Korea. A note with the specimen states that when found, this material was reported in Russia as fossil flesh—possibly of the Pleistocene mastadon—and was investigated by the Russian Academy of Science under that impression.

The note further reads: "The name asbestus is applied to two minerals of quite different origin and composition. Both show a fibrous composition, and both are indestructible in fire. Chrysotile, a silky fibrous serpentine, is one of them, and amphibole-asbestus, is the second. Mountain leather belongs to the latter. It is a closely felted natural product, forming sheets, and to the touch is papery, yielding, flexible and inelastic. It is sometimes alluded to as mountain cork. It is an alteration—involving more a physical than a chemical change—of the common amphibole varieties, tremolite and actinolite. It is usually hydrous, quite light, some varieties floating on water."

Patterson, N. Y., is a small hamlet of a few hundred souls. It is situated near the northeastern corner of Putnam County, about six miles northeast of Carmel, the County Seat, and close to the Dutchess County line. Putnam County is in southeastern New York. The Harlem Division of the New York Central Railroad passes through the town, from south to north, crossing the main thoroughfare at right angles and grade. At the northwestern angle where the railroad and road intersect, there used to be a large sign of the Tuckahoe and Patterson Marble Corp.[4] The writer had often seen this sign on passing through Patterson and wondered exceedingly where the quarry was located, as it was not visible from the road, and what minerals were to be found there. Search through literature on marble quarries of New York failed even to mention it.

On Friday, Dec. 1, 1933, accompanied by Emmet Doherty of Peekskill, the writer paid his first visit to the quarry. According to the sign, the watchman was to be found at the end of the road, a short narrow dirt road alongside the track. We looked him up. He was at home and graciously took us to the quarry which was shut down for the winter. We had to turn around, go out to the main road, turn south and about five hundred feet from the railroad crossing we turned right on Orchard Street. The street bore no street sign but was the first one to the right, south of the railroad. At the end of Orchard Street, which was just about a block long, a locked gate barred further progress. This the watchman

3 Dana, James D., *Manual of Mineralogy*, New Haven, 1870, p. 154.

4 The quarry is now operated by the Compton Mines Corp. (Stone Products), Patterson, N. Y.

opened and we passed on into the marble company's property over a winding dirt road, through a small woods, to the quarry which was soon reached. The total length of road from the main thoroughfare to the quarry is about 3,000 feet, or a little over one-half mile.

The quarry is a sidehill cut, on the eastern slope of a small hill. It is approximately 200 feet long by 100 feet wide, its western face being about 60 feet high and vertical. The rock is limestone, mostly bluish-gray in color, though white is also present. The limestone beds have an approximately north-south trend and dip about 60° east. The beds are penetrated by numerous cracks and joints so that large slabs can rarely be obtained; this however should prove no detriment as the rock is crushed on the ground and bagged, to be used either as fertilizer or for stucco. It is also burned for quicklime. A fine, well-constructed building is adjacent to the quarry where the material is crushed or burned. A siding connects the quarry with the railroad, about 400 feet to the east. The quarry was a new one, having been opened about 1926.

The day, which was fair in the morning, turned out bitterly cold and very windy in the afternoon. Little search for minerals could be undertaken on this account. Even Emmet, who apparently is immune to cold, soon sought refuge in the car. The writer however was determined to collect some minerals on the chance another visit might not be made as prospects for finding interesting specimens were dubious. At the extreme northern end of the quarry, the writer picked up off the floor a most interesting mineral—Mountain Leather. It was a find of much interest to him as it was the first he had ever found anywhere, and he searched the quarry for additional specimens. The cold and wind were completely forgotten; they were of minor importance. The writer had been seeing the minerals for sometime but as they so closely resembled trampled paper bags that had become frozen with edges frayed and curled he had hesitated picking one up for fear the watchman would laugh at him. Finally curiosity overcame the fear of ridicule and one just had to be picked up. Immediately it was recognized as Mountain Leather and the watchman who was looking on said: "This is very plenty and come down from the top (of the workings)". Evidently the material was common as an armful was soon gathered. This exhausted the supply available and we left for home. The largest specimen collected was 12x14 inches by ¼ inch in thickness and weighed 1⅛ pounds.

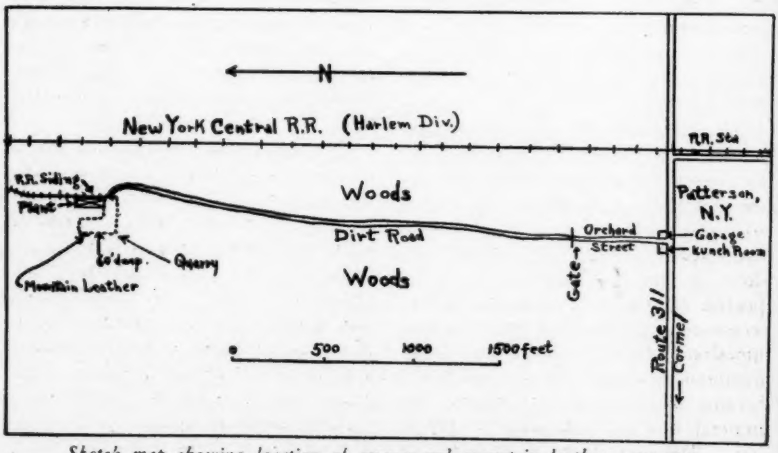
On Friday, Sept. 14, 1934, the locality was again visited by the writer and Mr. Doherty when conditions for examination were more favorable. The quarry again was not working with the exception of four men who were hauling off material from a stock pile and who were good enough to give directions where Mountain Leather could be found on the surface.

At the extreme northwestern corner of the quarry (on the surface), the limestone is overlain with a thin deposit of glacial drift (about 2 feet in thickness). This drift has been excavated about 15 feet back from the edge of the quarry pit exposing the rock which is glaciated, weathered, and rounded, and which shows many patches of a hard crystalline structure that rises for almost 2 inches above the surface of the limestone, forming miniature buttes. These "buttes" are

either quartz or masses of crystalline tremolite and are in patches from a few inches up to a foot or more square. Oftentimes the limestone shows weathered crystals of tremolite that stand out in relief and so lightly attached they may be picked off with the fingers. At times the limestone shows small veins of tremolite, one inch thick, which on first glance appear to be mountain leather as it has the exact color and surface structure even when broken and examined These evidently are the veins that ultimately turn into mountain leather.

Here also is a small amount of residual soil after limestone that must have been dumped or shoveled to one side when the quarry was working at this point or for some other reason. In this residual soil, small detached sheets of mountain leather were plentiful and were lying scattered in all directions. But we were anxious to locate the mineral actually in place, so little attention was given for finding additional specimens of this material. Prospecting the ground carefully southward, by the writer, a spot was soon found where a few tiny sheets of mountain leather were seen projecting upwards and tugging lightly on them gave no indications of their being loose. Was the mountain leather actually in place? The writer went quickly to work, digging away with the fingers the friable limestone and within one minute—"Eureka. I have found it." The mountain leather was in place.

The mountain leather formed a vertical sheet in a weathered, friable limestone. At first glance, it appeared to be along the contact of residual soil after limestone and friable limestone as the former bordered it on the west; on excavation it showed that the residual soil extended only about two inches down and then sloped off to the west where it continued for about a foot in depth, gradually becoming stiffer and stiffer until it passed into compact, solid limestone. On the surface, the soil was brownish in color but downward it became lighter until where it passed into limestone it was almost white. It was later noted that this residual soil



Sketch map showing location of quarry and mountain leather occurrence.

formed a small bed about a foot wide and perhaps 75' long, terminating at the spot where the dumped material with its detached sheets of mountain leather were found. This bed paralleled the quarry about 5 feet away from the edge of the workings.

The limestone contact to the east of the mountain leather was so weathered and friable it could be excavated with the fingers and this was done. Emmet soon joined the writer and proceeded to take full charge of operations. This was rather a ticklish job because in order to work to full advantage it was necessary to stand with the back to the quarry pit and on a steep slope where good footing was out of the question. For the mountain leather outcropped along the crest of the surface and a short steep slope leading to the quarry pit five feet away where it dropped vertically for about 60 feet. Adding to this rather dangerous position, a slight drizzle of rain was falling, of which we were unconscious. Emmet also was dressed in his "Sunday's best", as if he were going to a party in order to insure "he would do no collecting". But we were so excited in finding mountain leather actually in place that it made us both oblivious to the steady rain, dangerous position and Emmet's good clothes.

The excavation was a simple matter but it took about an hour's time as care was necessary not to damage the specimen. At first the residual soil and the friable limestone were excavated with the fingers but going down a few inches the soil disappeared (it was thicker a few inches westward as previously explained) and limestone bordered both sides of the mountain leather. As the limestone became more solid downwards, the mineral hammer was used to pry it out. The limestone on the surface was gray and friable but downward it became whiter and more compact. As the material was excavated, it was thrown back on the surface. We dared not risk throwing it on the slope where it might roll down into the pit, for fear someone might be in it although the quarry was not working. Soon enough material was excavated to expose the original small sheets of mountain leather seen on the surface as a thin vertical sheet, five feet long, and at least one foot wide. Its extremity on the south was soon found but northward the work became harder and harder until it was not possible to excavate it with the hammer, so that the northern extremity was not uncovered. In like manner, it was not possible to dig downward more than about 18 inches because the rock became too solid.

About a foot downward and in the center of the excavation, one small single sheet of mountain leather was found that was so thin it was almost translucent. This was mountain paper and its size was 7x3 inches. It was brown in color and full of holes. (Later, when thrown on water, it floated for a few seconds and then sank). Soon after, another sheet of mountain paper, 4x1½ inches in size, thicker and pure white, was found. These were the only specimens of mountain paper discovered.

When the point was reached where progress downward had ceased, work was commenced to free the large sheet from its attached western contact. Less than three minutes were spent when, without warning, the weak limestone fell in. Our careful work was ruined. As the limestone fell, it broke the mountain leather into pieces, and instead of obtaining a large sheet 5x1½ feet in area, the largest sheet secured measured only 15x7 inches and varying from ⅛ to ¼ inch thick.

Nevertheless, all pieces were collected and they were of good quality.

The mountain leather sheet in the rock looked more like a thin wet sheet of cardboard than anything else. And as wet cardboard breaks off in small pieces when one pulls on it (if the other end is attached to something firm) so did the mountain leather. The soil being wet from the rain, the mountain leather was also, which made it very pliable and easily broken. Nevertheless, the experience of finding mountain leather actually in place and excavating it proved very interesting and it was considered highly satisfactory even if the large sheet could not have been excavated entire. Had the day been sunny, with no rain for several days, and we had been supplied with a crowbar, the entire sheet of mountain leather could easily have been extracted whole but some difficulty might have been experienced in transporting it home.

The mountain leather from the Patterson quarry, if the present occurrence is a true sample, occurs as thin sheets in the gray limestone. The material varies from grayish-white to brownish in color, the latter evidently due to limonitic stains. As sheets, the mountain leather occurs smooth and thin, of large size, but many small specimens can be picked up off the quarry floor and from the residual soil which has been dumped at the northwestern corner. These, however, are so warped, twisted, wrinkled, crumpled, and bent, that it may be difficult to understand how such material can occur in smooth sheets. The answer is simple. The material is very pliable when wet—just like wet leather (hence its name, mountain leather)—so that it conforms to almost any shape it comes in contact with and on drying retains this shape. And because it is fibrous, as it bends, the fibers break, and on drying the loose fibers curl up.

Though called mountain leather, the material when dry resembles more the bark of a tree, especially white birch than anything else. One side of the mountain leather would be smooth and firm, corresponding to the inside of the bark, while the other side would be rough, peeling, and irregular just like the outside bark of an old white birch tree. It would seem to the writer that the name "mountain birch bark" or "mountain bark" would be more appropriate than "mountain leather", at least to the variety found at the Patterson Quarry.

Some of the mountain leather picked off the dumps were covered with minute moss which would indicate they had formed the outcrop of a vein.

A number of specimens also were found in which glassy calcite xls were enclosed and held in place by a very thin and white membrane—resembling somewhat the material of a hornet's nest—but white in color. As these xls fall out, they leave the mountain leather with small cavities and pits and likewise give the surface a very rough texture. Again, small "bits" of white limestone are apparently enclosed by mountain leather.

The structure of the mountain leather varies from a closely-woven, felted material to that which is truly fibrous and which approaches asbestus.

On placing the material in water, it sinks, absorbs much water and becomes so plastic it can be wrung out like a cloth. On drying, what ever form it assumed when wet, it retained the form on becoming dry. Whether wet or dry, it can be easily cut with scissors and trimmed to any size wanted. When thoroughly dry, chips may be cut off with a knife as if it

were wood, but the material does not yield to pinching nor even to the point of the knife unless heavy pressure is applied. Nor does the material bend or give any signs of yielding in the hands except when two or more large pieces are attached to each other by a thin strand, when naturally they will move so that care must be taken that they will not break at this weak link.

OTHER MINERALS

Aside from the fountain leather, the quarry furnishes practically no other minerals of interest except small black, prismatic glassy, crystals of wernerite. Some of these xls are over an inch long and have a square cross-section. They occur in the grayish limestone. Other minerals found here are as follows:

AMPHIBOLE VAR. TREMOLITE:—These are common and can be found as weathered xls—1 inch and over in length, in limestone, outcropping on the surface. None found by the writer were of good quality due to their weathering. The best crystals were found five feet west of the spot where mountain leather outcropped. The limestone, on weathering, leaves the xls standing out in relief when they can often be easily detached. Tremolite is also found massive with the limestone.

CALCITE:—This of course forms the bulk of the limestone present but is also found as crude glassy xls imbedded in mountain leather. The xls are not of good quality.

CHALCOPYRITE:—Found as small grains of fair quality in limestone.

LIMONITE:—Occurs sparringly as brown stains on limestone; also on mountain leather.

MUSCOVITE VAR. SERICITE:—Only one specimen was found forming small flakes on a friable grayish limestone.

PHLOGOPITE:—Occurs as small flakes in the limestone.

PYRITE:—This is fairly common and occurs either as small grains in limestone or as thin films on an opaque variety of quartz that resembles chert. In both cases the pyrite is of fair quality. Some blocks of limestone have inclusions of small seams of a black rock and along the contacts pyrite occurs as minute veins and scattered grains.

PYRRHOTITE:—Occurs as small grains and masses in the limestone.

QUARTZ VAR. SMOKY:—This is the commonest mineral present and occurs associated with the limestone. Generally it is found in small masses but now and them large masses are also found. It is of fair quality.

QUARTZ VAR. SMOKY (MORION):—This is the dark variety of smoky quartz and is not common. It is a fair quality and is associated with limestone.

GOLD PLACERS OF THE HAINA RIVER in the DOMINICAN REPUBLIC

By DR. WILLY LENGWEILER

Historical Data:

The first historical data relating to the occurrence of gold in the Dominican Republic dates from the month of October, 1495. At that time sensational notice was received in the fortified village, called La Isabela, which had been founded by Christopher Columbus, the discoverer of America, that gold had been found on the island. The find was made as follows:

Miguel Diaz, a soldier from Aragon, Spain, who had wounded another in a personal quarrel, deserted for fear of being severely punished. He took refuge in the heart of the virgin forest that existed on the island at that time. Proceeding to the southeast, alone, in unknown country, without food and not understanding the language of the natives, he finally arrived at the southern side of the island after a laborious journey and facing innumerable dangers. Near the mouth of the Ozama River, this unfortunate man was benevolently taken in by one of the native tribes.

While resting for many days, because of the lamentable condition in which he had been found, he fell in love with an Indian girl by the name of Catalina, and married her.

Fearful that because of his nationality her husband might leave her and desirous of being assured that he would remain with her always, Catalina showed him places where rich placer gold occurred in the bed and margins of the Haina River. In addition to this, she convinced her husband that it would be well for him to establish a Spanish Colony near the gold mines; in so doing she became a traitor to her country and people because of her love for her husband.

Miguel Diaz, having verified the existance of the rich gold occurrences, left for La Isabela in order to place himself at the mercy of Admiral Columbus and to obtain a pardon in exchange for his information. He was readily pardon.

Christopher Columbus became highly enthusiastic on hearing of the occurrence of gold and ordered his brother, Bartholomew, together with Francisco de Garay and a number of well-armed soldiers to return with Diaz for further investigations. The investigations were very satisfactory and plans were made for building a fort near the gold occurrences.

When Christopher Columbus sailed for Spain on March 10, 1496, he left Bartholomew, in charge of the Island Hispaniola, as the Dominican Republic (plus Haiti) was then called. Bartholomew in turn left their brother, Diego, in command of La Isabela while he proceeded to the Haina River where he erected a fort, as per plans, on the margin of that river. After remaining nearly three months at the fort, called La Buenaventura, during which time he studied the gold placers of the region and organized their exploitation, leaving ten men to work them, he proceeded with the rest of his party to the town of La Concepcion de la Vega Real.

Meanwhile three ships had arrived at La Isabela from Spain commanded by Pedro Alonso Nino, bringing with them food and provisions for the colony and also letters from Admiral

Columbus. In the letters the Admiral stressed the fact that work on the recently discovered gold mines should not be neglected and that another fort should be erected at the mouth of the Ozama River to serve as a base for the founding of a city on the southern coast of the island. So Ciudad Trujillo was founded, today the capitol city of the Dominican Republic.

During the regime of Commander Bobadilla, a young Indian girl found a large nugget of gold in the bed of the Haina River. This was in the year 1502. The find created intense excitement among the Spaniards and gold mining received an added impetus. The huge nugget, weighing 1,200 ounces and valued at 3,600 golden escudoes, was placed on board one of the ships of a fleet of 23 under command of Antonio Torres but was lost during a cyclone on the high seas. At the same time, Commander Bobadilla and a native chief, Guarionex, lost their lives.

On the death of Bobadilla, Commander Ovando took charge. The output of gold, however, soon began to decrease and he found on investigation that it was due to the recently adopted policy of granting absolute independence to the natives. Many Indians took advantage of the liberty decreed them by refusing to work the mines any more and leaving for their villages. At this time, which was the beginning of the year, 1503, a mint was established in the city of Santo Domingo de Guzman, on the street then known as El Platero (Silversmith Street); now known as Archbishop Merino Street, in which all gold that was to be recovered was to be deposited and this continued until the Spaniards left the island.

Commander Ovando did not neglect the mines but centered all his efforts in developing them. He furthermore established another mint in 1503 at Fort La Buenaventura for the coinage of gold recovered from the now famous Haina River. These two were the first mints to be established in the new world.

During the year, 1505, His Catholic Majesty of Spain granted a coat of arms to various towns of the new colony, called also the Island of Santo Domingo. To the town of La Buenaventura, because of the richness of its gold mines on the Haina River, he gave a coat of arms depicting a rising sun coming up behind a cloud with grains of gold falling into a green field.[1]

Geological Data:

The crude gold found in the placers of the Dominican Republic comes from the granitic rock of plutonic origin. The intrusive formations are those which, in abundance, form the mountain chains, and their metamorphic detritus constitute the sands and clays which contain the gold.

The granite is composed chiefly of quartz, feldspar, and mica. The quartz is unalterable in ordinary temperatures whereas the feldspar and mica, because of their chemical compositions, lend themselves to changes at a more or less high grade of temperature. The decomposition of a silicate rock, truly presented in granite, is rapid because it is a rock that is easily altered. The result of the chemical activity of water on granite is rapid. This action of the water is most important because of the decomposition of the silicates, inasmuch as its contact with this combination of rock causes disintegration of the silicates. Likewise the metal contained in the fledspar becomes dis-

1 Works consulted—*History of Padre Las Casas.*

associated, leaving the raw gold which is found today in the detritus.

The mountainous part of the hydrographic source of the Haina River is situated to the northwest and west of said river. The geological formation of this zone is mostly intrusive and is composed of granite in different forms and conditions of decomposition and disintegration.

Due to the rains at the source of the river in the hills and mountains, the water is always at work excavating and moving the material. It is because of this constant action that the streams are continually receiving the detritus from the inclined slopes which are made up of granitic rock in decomposition. The great and large masses, together with soil and water, are carried through the canyons to the river, leaving the crude gold deposited, because of its great weight, in the stream beds through which it is carried.

Torrential rains form channels and overflows of the river, the great force of which carries the detritus through the gullies and deposits it in bars.

The banks for the entire length of the river, continue being excavated up to practically its mouth at the Caribbean Sea, at which point the waters are slow-moving in the stream. In the quiet parts of the Haina River the erosive power of the water no longer exist, and for this reason the materials that have been brought down from the high parts are deposited, and now, instead of being destructive as formerly, the river becomes a builder.

The phenomenon of building is carried on not only near the sea, but also in some of the mountainous parts, where many of the valleys have been filled in this manner; after having completed this work the river opens another course where it again performs the same action. We therefore find that the lowland in the area of the Haina River is broad, in some parts the width being from 6 to 7 kilometers; in other parts it is relatively narrow, because of the greater resistance of the chemical and erosive action of the water on the rocks at such points.

It is very probable that the Haina River had its origin in the Superior Tertiary Geological Era, during some part of the partial elevating of the island of Santo Domingo. During this period the formation of the intrusive mountains and hills of this hydrographic source occurred; directly thereafter the water courses were formed which carry the excess of the waters to the lowlands. The alluvial deposits of this period are easily recognized from the many elevations that are now to be seen in form of more or less low hills, due to the resistances of rocks encountered by the water in the river and canyons, by reason of which fact the water had to open new passage-ways.

This phenomenon has occurred not only in many parts of the upper river but also near its mouth. At the end of the Pliocene period the Caribbean Sea continued up to the point now occupied by the village of Manoguayabo. The Haina River having deposited all of its detritus in the plain that exists to the north of this point, formed a sedimentary bar, the Pliocene lime blocking the exit to the sea. The consequence of this disturbance is a high alluvial hill upon which the small town of Manoguayabo is built. The river being held back in its natural course and exit to the sea, curved backward to the opposite side, forming the detritus deposits that are today to the north of El Carril and to the east of Daza.

The gentle undulations and the little variation in the surface of the sav

annas of Santa Rosa and of Puerto Rico, to the east of the town Los Alcarrizos, demonstrate clearly the great age of these alluvial deposits.

The absence of cascades and waterfalls in all of this region of the Haina River constitutes also an inequivocal proof of the old age of the formation of this hydrographic system, because erosion always and constantly has the effect of creating gentle curves

While certain up-stream points on the Haina River skirt the mountains, the alluvial deposits of the ancient level of the river are now higher than that of the river bed at this time; on

the other hand in the lower area of the river, deposits exist of sand and gravel which indicate clearly that there have been repeated variations in the course of the current of ' the stream. Each terrace indicates another period of erosion. The carving in of the actual bed of the river has taken place during a period of lesser movement of water, that is to say, in the present period.

There is also another proof of the geological age of the Haina River. The young valleys have their banks more or less vertical, whereas the banks of the older valleys are inclined, and those of the oldest are practically horizontal. None of the valleys that are filled with wash in the entire course of the river give evidence that the geological construction is of relatively recent origin.

Taking in account the fact that the detritus that has been moved by the erosion of the waters of the Haina River is auriferous, and calculating that the Pliocene period solely some 20 millions of years ago, we see the incalculable importance of these prehistoric placers, in which nature has been accumulating native gold during these many millions of years.

In no part of the Haina River are there pronounced or great gradients. The rapids are practically all composed of pebbles, although in some places the bed rock is not at a great depth.

The native gold taken from the rivers, canyons and gulches of the Haina River zone is in the form of grains, the size of almonds, maize or corn, flat particles and rounded nuggets. The principal matrix of the metal is composed of quartz and clay sands, with which there are mixed particles of mica and fragments of granite, diorite and red porphyry, and grains of chrome ore, magnetic iron, titanic iron, and occasionally garnets.

Native platinum is also found some times in the same region under the same conditions as the gold.

The Dominican native gold has been analyzed many times, and its purity varies from 930 to 937 per 1000.

If the Haina River after more than 400 years of having its sands and gravels washed for placer gold, still contains gold—as it does—then it is logical to assume that this condition has existed since the remote geological eras of their formation. And if the small native miners, working with only their wooden pans and no other equipment, have been during these centuries and still are compelled to confine their operations exclusively to the bed of the river and its tributaries, and their work has always, as it will do, give them satisfactory returns in the quantity of crude gold obtained from this work, then it is also logical to estimate that these gravel and sand deposits, whose age is many millions of years, still contain great quantities of gold, which native miners cannot and will not work, but which modern industrial equipment could easily dig and treat.

Bausch & Lomb's Magnifying Catalog

Bausch & Lomb Optical Co., Rochester, N. Y., have issued recently a new catalog featuring magnifiers and readers. The catalog consists of 20 pages with many illustrations and is gratis.

FIELD MUSEUM COLLECTS THUNDER EGGS

"Thunder eggs," in deep brilliant reds, yellows and greens have arrived at Field Museum of Natural History, Chicago, Ill.

They came with a collection of more than 300 specimens of various other types of cryptocrystalline quartzes as the result of an expedition conducted for several weeks past in Oregon, Washington and Wyoming. Dr. Albert J. Walcott, Chicago geologist, was in charge of collecting.

Thunder eggs are a unique type of agate which occur in rhyolite rock formations of comparatively recent geological age. They are roughly spherical nodules varying in size from one inch to one foot in diameter. They have a compact hard wall of very fine grained material, highly silicified. Different types of beautiful agates are formed by chalcedony in the irregularly shaped hollow space inside the thunder eggs.

Dr. Walcott's collection includes also specimens of plume, flower and moss agates; opal containing cinnabar; fluorescent chalcedony; and a geode, weighing about 160 pounds—one of the largest ever found—lined with extraordinary quartz crystals. Among other intriguing specimens are yellow and red jaspers, and black and blue chalcedony formed by nature into attractive designs. The color effects are due to the presence of iron compounds in the minerals.

The expedition was assisted by Dr. H. C. Dake, a mineralogist of Portland, Oregon. The collection will be used in preparation of a proposed exhibit devoted especially to cryptocrystalline varieties of quartz.

IT'S A SECRET

Miss Helen Wright of Wright, Schmidt and Stevens, mineral collectors in general and nice people in particular, has taken us severely to task because we had committed the unpardonable sin of collecting—gave out in last month's issue of ROCKS AND MINERALS information relative to their secret mineral locality in the wilds of Dutchess County, N. Y. Now that their secret is no longer a secret and it is of no value in trying to keep it a secret, she is *willing* to divulge the mine's secret location but under one of three conditions.

1. Directions for reaching the mine will be sent us when the temperature drops so low that it makes a dent in the earth's crust; or when it soars so high that a ten-foot pole cannot reach it.

2. A map showing the mine's exact location will be sent us if first we send them that very valuable and priceless gold specimen which we found near Camp Smith, N. Y., about two years ago.

3. We will be taken to the locality in their car if first we take them to one of the emery mines near Peekskill.

These very severe restrictions have caused us to Stop-Look and Listen but for the sake of mineralogy one of them must be accepted. But which one? Ah! that's a secret.

PRIZE ARTICLE CONTEST AWARDS

After reading carefully the manuscripts submitted in the Prize Article Contest, the three judges have rendered their report to the Editor of ROCKS AND MINERALS awarding the three prizes together with a recommendation for Honorable Mention.

The prize winning articles are:

1st Prize—

The Mines and Minerals of the Tri-State District

By Ernest J. Palmer, 1090 Centre St., Jamaica Plain, Mass.

2nd Prize—

A New Englander Discovers Galena.

By Miss Vera Root Smith, 407 W. State, Rockford, Ill.

3rd Prize—

A Rocks and Minerals Outing to Owens Valley, California.

By Nicholas A. D'Arcy, Jr., 6731 Arbutus Ave., Huntington Park, Calif.

Honorable Mention has been accorded to:

A Problem in Finding Meteorites.

By C. P. Butler, Casilla 44, Calamas, Chile, South America

Mr. Butler's manuscript was of considerable interest but too short to be included in the judging for prizes as were several others submitted.

The judges recommended a number of manuscripts for their interest and some of them will be published in ROCKS AND MINERALS later in the year.

The judges found several manuscripts to be of particular merit but they covered subjects that would not appeal to the overage reader of ROCKS AND MINERALS.

Our best congratulations to the three prize winners. Their manuscripts will be printed in this magazine as follows:

1st Prize Manuscript in the February issue.

3rd Prize Manucript in the March issue.

2nd Prize Manuscript in the April issue.

This order is due to a similarity in subject matter between 1st and 2nd prize winning manuscripts.

The Editor wishes to thank all of the contestants submitting manuscripts. We appreciate the interest they have manifested. And we wish to take this opportunity also to thank the judges for their kind cooperation.

ROCKS AND MINERALS is grateful to the donors of the prizes for this contest, not only for making it possible but also for their desire to encourage the writing of worth-while articles for the magazine. It is hoped that other such contests may be held during future years and that readers will show an increasing interest and desire to participate. All of you readers have the potentiality for a good article in you, if you will only take the time and make the effort. In the last analysis, it is all of you, just as much as the editor, who have a part in making ROCKS AND MINERALS a readable and worth-while publication. Without your continued interest and support, the magazine cannot go forward.

A SIMPLE, HOME-MADE GEM CABINET

By GEO. H. LA BODA

Colome, S. Dak.

A pleasurable past-time can be had during one's spare moments in the making of a "Treasure Chest" gem cabinet. The chest itself is a discarded radio set with the panel at top removed. The trays are made of thin boards taken from prune or grape boxes which can be purchased for a dime from your grocer or even given you gratis.

The bottom boards of the grape boxes which are approximately 1/8 of an inch thick are used for the bottom of the trays; the side boards of the prune boxes (1/4 of an inch thick) are used for the sides and ends of the trays. These boards should be ripped to the various widths to conform with the depths of each tray so as to hold the various size specimens. The corners are mitered so as to make good solid joints and are then nailed together with brads; the bottom boards are then nailed in place. After the trays are all assembled, they should be finished off with the sanding block having a fine sandpaper thereon. The holes for the lifts (handles) are then made in the end boards.

The top tray can be made extra shallow in which to place cut gems.

When all trays are finished, they should be stained with a color to match that of the cabinet; later each one should be coated with varnish to protect the staining.

Finally a lining of felt or velvet should be glued to place in the bottom of each tray to add to its attractiveness.

Anyone wishing addition information on the construction of these cabinets need only to write me, enclosing a stamped envelope, and it will be gladly given.

Newark Museum Meetings

The Newark Museum of Newark, N. J., is offering a series of eight meetings on minerals on Thursday evenings, Jan. 12th to March 2nd, at 8:00 p. m. The scheduled of meetings is as follows: Jan. 12th—Introducing the Mineral Kingdom; Jan. 19th—Guideposts to Identification; Jan. 26th—How to Use Tables and Keys; Feb. 2nd—Types of Form and Structure; Feb. 9th—Cleavage, Fracture, Specific Gravity; Feb. 16th—Some Other Physical Characters; Feb. 23rd—Formation and Economic Importance; Mar. 2nd—Collection and Care of Specimens, Advanced Methods of Study.

NEPHRITE BOULDERS FOR THE PEKING JADE TRADE

By C. N. JOYNER

Jade reaches China in two forms, in fact, as two different materials, jadeite and nephrite. The first is almost exclusively from Burma while the latter is brought from Sinkiang (Chinese Turkestan) and Siberia. These forms of jade occur in other parts of the world but the Chinese jade workers and dealers are conservative folk who prefer not to depart from the ways of their fathers. Even Burmese jadeite was not used in the Celestial Empire before the latter part of the 18th Century, though it had been known for five hundred years.

Nephrite has been sent to Peking from Chinese Turkestan from time immemorial, usually in the form of water worn boulders, but also in rough stones. The mines are still operated at sites 12,000 feet above sea level in the K'un Lun Mountains (Goette).* The material is carried down into the valleys on yaks, where it is purchased by agents of the Peking dealers, loaded on camel or mule trains and started on the long caravan route to Peking. This ancient imperial road parallels the K'un Lun Mountains and then the Great Wall of China, stretching from Khotan to Peking over two thousand miles through more than thirty degrees of longitude. It was over this route that Marco Polo passed on his second trip to China in the thirteenth century.

The pieces of nephrite so imported vary from pebbles to large boulders, but are usually limited by the carrying capacity of the animals and a piece weighing four or five hundred pounds is considered large. However, it occurs in very much larger masses There is one piece, collected by Dr. Kunz in Silesia and now in a New York Museum, the weight of which is given variously as from 4718 to 4812 pounds. As the latter is given in the Britannica article written by Dr. Kunz himself perhaps we may take it as authentic. Dr. Kunz refers to this specimen as one of the largest pieces ever quarried, but many larger pieces have been found in the form of boulders.

In the accompanying photograph are shown five such boulders of green nephrite recently imported into China from Siberia via Manchuria and the port of Dairen. This shipment consisted of some thirty pieces ranging in size from two hundred to thirty-eight hundred pounds. There are two that equal this latter weight, one of which (that on the extreme left in the illustration) has recently been sold to a Peking dealer for $18,000 Chinese dollars, about $4,500 American currency. They are shown as stored in the open "compound" of a Chinese warehouse at Tientsin. The great weight of these pieces of jade insure that they will not be stolen.

Dr. W. B. Pettus, a well-known authority, head of the College of Chinese Studies at Peking, informs the writer that in 1937 a jade boulder weighing six or seven tons was brought to Peking from Khotan. The route was from Khotan to the Russian railway, thence north to the Trans-Siberian railway and then to Peking. Dr. Pettus, who saw this piece both before and after it was cut, reports that it has been carved into hundreds of pieces.

In spite of the immense size of these masses of jade, they are greatly

* John Goette. "Jade Lore". Kelly and Walsh, Shanghai, 1936.

exceeded by the carved, greyish-white boulder described by Goette in "Jade Lore". It is in the Lo Shou T'ang, "Pavilion of Contented Longevity" in the Forbidden City at Peking, and is almost certainly the largest piece of jade known. This magnificent mass is roughly three feet square and over seven high. Goette estimates the weight to be at least seven tons. The writer, who has recently examined the specimen, feels that eight tons would be nearer the figure. Before the carving (which took ten years) the weight may easily have exceeded fifteen tons. An excellent photograph of this carved "Jade Mountain" and of other large masses of jade are given in Goette's "Jade Lore".

This carving, which is in the form of a monument to Emperor Yu, was made from a piece presented to the Emperor Chien Lung in 1778 by the Governor of Chinese Turkestan. There appears to be no record of how it was carried over two thousand miles of deserts, and mountains. However, by the courtesy of Mr. E. C. Werner, the sinologue, and Mr. T. C. Chang, Administrative Secretary of National Palace Museum at Peking, a copy of the following report has been made available.

"A memorial from Yung Kwei, Administrator at Wushih, and Ma Shing Ah, Commander-in-Chief at Hotien, to the Emperior, dated the 29th the 10th Moon of the 43rd year of Chien Lung.

We have the honour to report that while we were collecting mountain jade in the 40th year of Chien Lung we found that the number of big jade pieces obtained was much greater than previously and if we were to transport them by the Mohammedan labourers as before the number of labourers might be over one thousand and yet without being able to travel quickly. We preferred to make use of carts for

Five huge nephrite boulders stored in the open "compound" of a Chinese warehouse at Tientsin, China. The one at the extreme left, weighing 3,800 lbs., has been sold for $4,500 ($1.184 a lb.). The great weight of these boulders insures them from being stolen.

transportation, which not only make it easier for the Mohammedans but also make for speed. We reported about the matter and manufactured carts and allocated official ponies for transportation.

While we were about to repeat the process this time we were approached by Prince Ah Chi Mu, of the title of "Se Ti Pa Erh Ti" in company of the tribesmen, who, having no means to reciprocate the gracious favours of the Great Emperior, desire to provide cattle for the carts from Yeh Erh Chiang to the border of An Keh Su. which distance spans seventeen or eighteen stations. Finding them to be sincere, we have approved their offer to provide cattle, send Mohammedan labourers, repair roads along the route, clear the woods and stones on the way and appoint tribesmen to supervise."

The dates mentioned correspond to 1776 and 1779 A. D. so that they include the year in which the boulder was presented to the Emperor and we may conclude that the fifteen ton specimen was actually carried by cart. The memorial indicates that at least two or three years were required for each jade gathering expedition.

You Can't Judge By Appearances

When two members of the Rocks and Minerals Association, Wilbur J. Elwell and T. Lipton Hart Smith, of Danbury, Conn., on a very rainy day went off to Plainfield, Mass., to find a cummingtonite locality, two farmers were their guides. Tramping through the storm, over soft ground and wet vegetation, they returned empty handed but wet to the skin and smeared with mud. Tired and hungry, at the suggestion of Mr. Elwell, they went to a small restaurant and ordered a hot dinner. The waiter acted in a most peculiar manner, eying them suspiciously whenever he brought on any food. At the conclusion of the meal, Mr. Elwell who acted as host requested the bill and drew his purse from his pocket. The look of relief which came over the waiter's face led Mr. Elwell to ask what was the matter. The reply was not complimentary to the party the waiter had served.

"Why," said he, in an embarrassed manner, "when you came in I thought you were a lot of tramps and wouldn't pay for your dinner so I kept saying to my wife in the kitchen—I hope they wont eat too much—I hope they wont eat too much, or the restaurant wont be making a profit today."

Connecticut Topo. Maps Available

The Connecticut Publicity Commission, State Capitol, Hartford, Conn., has available for distribution topographical maps of the State. These maps are exceptionally fine showing all elevations and contours and come in sections—ten cents each. Of course the technical data to be found on these maps is not generally included on any of the other Connecticut Maps on the market and from this standpoint should be especially useful to geologists and mineral collectors.

The Commission will be glad to answer any inquiries concerning these maps, or their very interesting guidebook that was reviewed in the November issue (1938) of ROCKS AND MINERALS, or any other subject relating to Connecticut.

COLLECTING WITH A CAMERA

By W. C. MINOR

Photography is itself one of the leading hobbies. Making snapshots is perhaps indulged in by more people than any other hobby. But the beauty of photography is that it can be combined with, and adds to the interest of, any other hobby. And the collecting of rocks and minerals is no exception.

Of course every collector knows that photographs of mines, quarries, etc. when displayed with specimens from those particular localities add greatly to the interest of the collection. But comparatively few have tried photographing the specimens themselves, though this can be a most interesting branch of the collecting game. Considerable pleasure can be derived from making some good negatives of a few of your prized specimens and sending prints to interested friends who are also collectors. Sort of like being able to eat your cake and keep it too. Photographs are also useful in helping you relocate interesting places. Very often we stumble across deposits of minerals, fossils, etc. which we wish to return to later. But if the find happens to be in unfamiliar territory it is sometimes rather difficult to find the exact spot again. However, if you have made a snapshot or so of the locality on your first trip that will simplify matters considerably. Photographs are better then a map for this purpose. Collectors are constantly running across interesting massive specimens that are altogether too large to be moved. Well, if we can't have the specimen itself a good photograph of it is the next best thing.

Some choice specimens among the writer's collection of mineralogical and geological photographs are: Miracle Rock, world's largest balanced rock; Independence Rock, world's greatest monolith; Obsidian caves, in the Modoc Lava Beds; numerous cliffs and canyons; stone faces; balanced rocks and natural bridges—not to mention various and sundry assorted lofty peaks and mountain ranges. Interesting specimens all but hardly subjects for cabinet display. For instance one of the smallest of these, Miracle Rock, located in the Little Dolores Valley of western Colorado, it is eighty feet high, twenty feet wide, balanced on a base scarcely three feet wide, and weighs a mere 8,000 tons. Beyond question such a specimen would add prestige to any collection but also doubtless even the wealthiest collector would be embarrassed to find room to display it properly, even if he were allowed to remove it from its present location. However, anyone can make as many photographs of it as he likes.

In many localities throughout the country there occur large deposits of certain minerals. For instance: the mountain of obsidian (California), the mountain of copper ore (Utah), Red Mountain and the Pink Cliffs (Colorado), etc. To be sure we can't collect an entire mountain, but a small specimen of the material in question together with a photograph of the mountain makes an extremely interesting exhibit. The writer has discovered a very satisfactory, to him at least, method of handling such material. This idea may not be new but he has never heard of it being used before. Take a piece of fairly stiff cardboard, postcard size or somewhat larger. On one end of the card mount a thin slice of the mineral, it needs not be larger than an inch or so in

length (specimen may either be sewed on or glued firmly to the card). On the other end of the card paste a photograph of the locality from which the specimen was taken. Write a brief description underneath or on the back of the card. Such card mounts need not be at all expensive but they do make an interesting display and a large number of them can be filed away in an ordinary shoe box.

You do not need an expensive professional type camera for the average run of geological photos. Ordinary single lens box cameras will make perfect negatives if the lighting conditions are right. However, a camera with a fast, sharp cutting anastigmat lens and a shutter with a variety of different speeds is greatly to be preferred. A pocket size folding camera of the Kodak type is the most convenient to carry and use. The writer has made hundreds of satisfactory negatives with just such an instrument. But if you wish to make full size close up views of small specimens then a focusing type camera with a double extension bellows will be necessary.

Size of the picture depends, of course, upon the maker's own preference. For contact prints the writer recommends a camera that makes a negative at least two and one-fourth by three and one-fourth inches. If you intend to make enlargements from your negatives most of the miniature cameras now on the market will do excellent work. However, these tiny negatives are too small to make really satisfactory contact prints.

The last word in true to life photography can be had with the recently developed natural color films of the Kodachrome and Dufaycolor types. These color films are made to be used in certain miniature type of cameras. A picture taken on them is developed into a transparency which may be mounted as a small lantern slide. Thus your snaps of choice mineral specimens, favorite scenic views, etc. may be projected on the screen in full natural colors, and, by the way, a good collection of these natural color slides is something of no small value.

There are hundreds of different types, sizes and styles of cameras on the market so decide for yourself which you would rather have. But if you do not already own a camera by all means add one to your equipment for take it from an old hand at the snapshot game if you do not pack a camera on your field trips you miss half the fun.

New Magazine Appears

A new magazine, *The Miner, Chemist and Engineer,* and published in the interest of the miner, geologist, chemist, collector and lapidary made its first appearance in November, 1938. Published by the Miner, Chemist & Engineer Publishing Co., 210 Orondo Ave., Wenatchee, Wash. Subscription price $2.00 a year; single copies 20c.

WITH OUR MEMBERS

Dr. Willy Lengweiler of Trujillo City, Dominican Republic, is collecting a suite of Dominican minerals and ores for display at the World's Fair in New York City this year.

Jane Lind, a little miss of 10 summers or winters, who is a member of The Chiselers Club of Crestwood, N. Y., presented the Secretary of the R. & M.A. with a magnifying glass that deserves more than passing attention. The glass, 1¾ inches in diameter, is so easy to manipulate and powerful too that the small 12d. glass heretofor used that was such a strain on the eyes has been discarded.

Some very fine specimens of xled marcasite from Glen Cove, L.I., N.Y., have been artistically mounted on black wooden bases by Arthur H. Jones of Brooklyn, N. Y. These specimens first had to be cleaned in acid, then coated with a preservative, before mounting. We have seen about 50 of these attractive mounts and no two were alike.

Frank W. Hess of Springfield, Mass., has found some interesting specimens of purpurite at an old feldspar quarry near Grafton, N. H.

Verne C. Wheeler of Roswell, N. Mex., sent us recently some gypsum crystals the likes of which we never saw before. Long and very slender they are and at first glance one would surely mistake them for darning needles. The crystals were found in a cave near Fort Stanton, N. Mex.

Roy Menninger, age 12, of 1724 Collins Topeka, Kansas, would like to correspond with boys of his age. He has a collection of 150 specimens.

Stephen Varni, noted gem expert and president of the Stephen Varni Co. of New York City, is now a stamp collector. But do not let this news dismay you as he has no intentions of deserting gems nor even mineralogy. A philatelic friend of his has presented him with a small series of stamps—all of which feature gems—that have been issued by various countries of the world. These stamps are attractively mounted in a special album.

A xled specimen of siderite from Rakuzan mine, Kokaido, Korea, was received recently from E. L. Gordes of Yokohama, Japan, that caused no little excitement in our office. The specimen is identical in color and form with the siderite occurring on Mine Hill, Roxbury Station, Conn. Furthermore, in it were imbedded small milky quartz crystals and tiny pyrite crystals—just as is so often the case with the mineral from the Connecicut locality.

In the Boston *Sunday Globe* of Nov. 13th, 1938 (Boston, Mass.) appeared a long and interesting article on Beryl Mountain in South Acworth, N. H. This famed locality, especially noted for its beryl, is a mecca for mineralogists and geologists. We are indebted to Charles E. Winslow of Greenfield, Mass., for the clipping containing the above article.

A very fine photo showing three rock crystals found near Reno, Nev., and each containing stibnite inclusions has been sent us by Frank L. Garaventa of Reno. Mr. Garaventa, incidently, is collecting suites of Nevada minerals which are to be exhibited at the World's Fairs in New York and San Francisco.

CLUB AND SOCIETY NOTES

Queens Mineral Society

We are informed by Miss Bernadette Reis, Secretary of the Queens Mineral Society, that until further notice the Society will meet in the Franklin K. Lane High School, at Elderts Lane and Jamaica Ave., Woodhaven, L. I., N. Y., instead of at the Richmond Hill Library.

Newark Mineralogical Society

The members of the Newark Mineralogical Society held their 180th meeting in the Brewster Room, Junior Hall, 468 Orange Street, Newark, Sunday afternoon, December 4, 1938.

The meeting was called to order at 3:15 by the President, Mr. Richard P. Milburn, who presided. There was a good attendance of members. Mr. Wilfred R. Welsh was admitted to active membership.

On account of the 181st meeting falling on January 1st, the members voted to hold the meeting on January 8th.

Mr. Louis Reamer will give a talk on "Fluorescent Minerals, Fabrics and Other Materials". The talk will be thoroughly illustrated.

At the close of the business session the members listened to a symposium on "Native Elements", in which the following members took part: Mr. William H. Broadwell, Mr. Paul Walther, Mr. John A. Grenzig, Mr. Louis Reamer, Dr. J. G. Schudel, President Milburn and Mr. Leonard A. Morgan. Each member's talk was illustrated with specimens of Native Elements. Mr. Grenzig spoke especially on the hardening of copper. The President read a short paper on Native Elements.

New Haven Mineral Club

The winter program of the New Haven Mineral Club takes in five meetings at each one of which will be a guest speaker. The first one was held on Dec. 12th and John A. Grenzig spoke on oddities in mineral specimens. The remaining meetings are as follows:

Jan. 9th—Arthur Montgomery—"My four years of collecting," illustrated with lantern slides.

Feb. 13th—James Morton, Curator of the Paterson Museum, Paterson, N. J.

Mar. 13th—Daniel T. O'Connell of City College of New York—"Illustrated talk on Grand Canyon and Goosenecks of the San Juan."

April 10th—John Vlismas, New York lapidary—"Practical demonstration on cutting and polishing."

All meetings of the New Haven Mineral Club are held on the second Monday of the month at room 218, 19 Congress Ave., New Haven, Conn.

Michigan Society Issues Directory

The Michigan Mineralogical Society of Detroit, Mich., has issued a directory of the producers of minerals and mineral products in Michigan in 1937 and the limestone and sandstone quarry operators of Ohio in 1936.

The directory consists of 9 pages and was compiled by D. C. Henderson of the Field Trip Committee, 13641 Griggs Ave., Detroit.